REVENDICATIONS

1- Neutron detector comprising as scintillating material $Cs_{(2-z)}Rb_zLiLn_{(1-x)}X_6 : xCe^{3+}$, where X is either Br or I, Ln is Y or Gd or Lu or Sc or La, where z is greater or equal to 0 and less or equal to 2, and x is above 0.0005.

2- Neutron detector according to preceding claim, wherein x is above 0.005.

3- Neutron detector according to one of preceding claims, wherein x is less than 0.3.

4- Neutron detector according to one of preceding claims, wherein x is less than 0.15.

5- Neutron detector according to one of preceding claims, wherein it is under the form of a monocristal.

6- Neutron detector according to preceding claim, wherein the volume of the monocristal is at least 10 mm^3.

7- Neutron detector according to either of claims 1 to 4, wherein it is under the form of a powder.

8- Neutron detector according to preceding claim, wherein it is either packed or sintered or mixed with a binder.

9- Neutron detector according to one of preceding claims, wherein its formula is $Cs_2LiYX_6:xCe^{3+}$.

10- Neutron detector according to one of claims 1 to 8, wherein its formula is $Rb_2LiYX_6:xCe^{3+}$.

11- Use of a material of formula $Cs_{(2-z)}Rb_zLiLn_{(1-x)}X_6 : xCe^{3+}$, where X is either Br or I, Ln is Y or Gd or Lu or Sc or La, where z is greater or equal to 0 and less or equal to 2, and x is above 0.0005, in neutron detection.

12- Use according to preceding claim wherein x is above 0.005.

13- Use according to one of preceding use claims, wherein x is less than 0.3.

14- Use according to preceding use claim, wherein x is less than 0.15.

15- Use according to one of preceding use claims, wherein the material is under the form of a monocristal.

16- Use according to preceding claim, wherein the volume of the monocristal is at least 10 mm^3.

17- Use according to one of claims 11 to 14, wherein it is under the form of a powder.

18- Use according to preceding claim, wherein it is either packed or sintered or mixed with a binder.

19- Use according to one of preceding claims, wherein its formula is $Cs_2LiYX_6:xCe^{3+}$.

20- Use according to one of claims 11 to 18, wherein its formula is $Rb_2LiYX_6:xCe^{3+}$.

21- Material of formula $Rb_2LiYX_6:xCe^{3+}$ where X is either Br or I, Ln is Y or Gd or Lu or Sc or La, and x is above 0.0005.

22- Material of formula $Cs_{(2-z)}Rb_zLiLn_{(1-x)}I_6 : xCe^{3+}$, where Ln is Y or Gd or Lu or Sc or La, where z is greater or equal to 0 and less or equal to 2, and x is above 0.0005.

23- Material according to claim 21 or 22, where x is above 0.005.

24- Material according to one of preceding claims of materials, wherein x is less than 0.3.

25- Material according to preceding claim, wherein x is less than 0.15.

26- Material according to one of preceding claims of materials, wherein it is under the form of a monocristal.

27- Material according to preceding claim, wherein the volume of the monocristal is at least 10 mm^3.

28- Material according to one of claims 21 or 22, wherein it is under the form of a powder.

29- Material according to preceding claim, wherein it is either packed or sintered or mixed with a binder.